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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,697	06/18/2002	Thomas D Reed	91830/477490	7783

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EXAMINER	
BURKHART, MICHAEL D	
ART UNIT	**PAPER NUMBER**
1636	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,697	REED ET AL.	
	Examiner	Art Unit	
	Michael D. Burkhart	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *38-51* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/22/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-37 in the reply filed on 11/8/04 is acknowledged. The traversal is on the ground(s) that all the claims contain the same ingredients and steps, that there is no undue search burden, and that there is no showing of distinct class and subclass for each Group. This is not found persuasive because the claims were restricted under lack of unity guidelines, not U.S. restriction rules. This application is a 371 from a PCT application, and therefore is restrictable under the rules outlined in the restriction requirement. Applicants are reminded that search burden and U.S. classification are not relevant in this case, only a holding of lack of unity is required.

The requirement is still deemed proper and is therefore made FINAL.

Claims 38-51 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/8/04.

Priority

This application, filed 6/18/2002, claims priority to PCT/US00/16712, filed 6/16/2000. It is also noted PCT/US00/16712 claims priority to provisional application 60/139,423, filed 6/16/1999. However, applicants have failed to claim this priority properly (see below). The application has been examined with a priority date of 6/16/1999 assuming correction of these formalities.

It is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/US00/16712, filed 6/16/2000. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121

and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "removing substantially all of the chromosomal nucleic acids". However, the specification does not provide a reasonable definition for this phrase, only

defining "substantially purified" regarding removal of proteins, salts, lipids, etc. (page 7). Therefore, regarding removal of chromosomal nucleic acids, the metes and bounds of the claimed subject matter are unclear. This rejection affects all dependent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Little (U.S. patent 5,075,430, 1991). The instant claim is drawn to a method of isolating extra-chromosomal nucleic acids comprising the following steps: a) homogenizing a biological sample; b) removing substantially all the chromosomal nucleic acids from the sample; c) contacting the sample containing extra-chromosomal nucleic acids with a chaotropic solution under conditions that permit the nucleic acids to precipitate; and d) recovering the extra-chromosomal nucleic acids. Little discloses a DNA purification method comprising alkaline lysis of bacteria followed by neutralization and removal of proteins and chromosomal DNA by centrifugation. The supernatant (containing plasmid DNA) was precipitated, dried, and resuspended in TE and $NaClO_4$ (sodium perchlorate, a chaotropic agent). A Celite (diatomaceous earth) slurry was added and then the sample centrifuged (precipitation of plasmid DNA, bound to the diatomaceous earth). DNA was eluted from the Celite precipitate with TE and used in restriction and ligation reactions (column 7, lines 24-42).

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Padhye et al (U.S. patent 5,658,548, 1997). The claims are as described above except a ribonuclease enzyme is added prior to step c). Padhye et al teach a plasmid purification protocol comprising alkaline lysis of *E. Coli* in a buffer containing RNase A followed by neutralization and centrifugation to remove proteins and chromosomal DNA (column 11, line 36 - column 12, line 7). To the supernatant (containing plasmid DNA) was added a resin comprising guanidine chloride (a chaotropic agent) and glass particles that bind DNA under these conditions. The glass particles were precipitated by filtration and centrifugation, washed, and DNA eluted with TE buffer (column 13, lines 21-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Little (cited above, 1991) in view of Fisher et al (Analytical Biochem., 1991) and Padhye et al (cited above, 1997).

The claimed method is described above, and may also comprise a step, prior to step c), of precipitating the extra-chromosomal nucleic acids and resuspending in buffer. The homogenization step may be incomplete lysis, which may be alkaline lysis. The chromosomal nucleic acids may be removed by precipitation, sedimentation, filtration, or centrifugation. The method may further comprise the step of washing the recovered extra-chromosomal nucleic acids, which may be by addition of an alcohol and water solution. The biological sample is a cell selected from the group of bacteria, yeast , insect, plant, or mammalian and the cell may contain one or more of the nucleic acid sources listed in claim 10. The chaotropic solution may comprise effective amounts of at least one chaotropic agent and a buffer to maintain an alkaline pH. The chaotropic agent may be any of those listed in claim 14, and be present at a concentration of about 1M-7M.

Little discloses a plasmid DNA purification method comprising alkaline lysis of bacteria followed by neutralization and removal of proteins and chromosomal DNA by centrifugation. The supernatant (containing plasmid DNA) was precipitated, dried, and resuspended in TE (pH 8) and 6M $NaClO_4$ (sodium perchlorate, a chaotropic agent). A Celite (diatomaceous earth) slurry was added and then the sample centrifuged (precipitation of plasmid DNA, bound to the diatomaceous earth). The Celite pellet was washed twice with a buffer of 50% ethanol. DNA

was eluted from the Celite precipitate with TE and used in restriction and ligation reactions (column 7, lines 24-60 and Table A).

Little does not explicitly teach the use of a ribonuclease enzyme.

Fisher et al teach the addition of RNase A prior to the addition of a chaotropic agent (pg. 310, first column, "Automated Plasmid Extraction"), and that the reason for this was the removal of unwanted RNA. Fisher further teaches that RNA removal is necessary for downstream use of the plasmid DNA, as in sequencing reactions: "..plasmids which had not been RNase-treated gave poor sequencing results.." (page 314, second column, end of second paragraph). Also see Figure 3 (pg. 313) demonstrating the effects of RNase treatment on plasmid DNA purity.

The teachings of Padhye et al are described above and applied as before.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Little et al to include the use of an RNase A enzyme because it was known in the art at the time of filing that this step can remove unwanted RNA, and because Fisher et al teach this removal is desirable for reasons of DNA purity and function in downstream assays. One would have been motivated to do so in order to receive the expected benefit of improving the purification method taught by Little et al by removing unwanted RNA. Given the teachings of the cited art, the state of the art at the time of applicants invention, and absent evidence to the contrary, there would have been a reasonable expectation of success in utilizing the RNase A taught by Fisher et al and Padhye et al in the methods taught by Little for plasmid DNA purification.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Burkhart whose telephone number is (571) 272-2915. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Irem Yucel can be reached on (571) 272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael D. Burkhart
Examiner
Art Unit 1636

DAVID GUZO
PRIMARY EXAMINER